

Final Year Project Report

# SWITCH MODE 42V CAR BATTERY CHARGER SYSTEM



*Submitted by*

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## **Abstract**

With advancement in technology loads and accessories in vehicles are significantly changing. Due to global warming and energy crises a system is required to improve fuel consumption and to regulate fuel emission. To overcome this problem power electronics can play an important role to improve vehicle's architecture by establishing a higher voltage system of 42V using electrical components which draw less energy from the vehicle's engine. Keeping this thing in mind, we decided to work on 42V vehicle battery charger system as our project for final year. Presently vehicle runs on 14V car battery system as this system seems to be vulnerable to support the heavy loads that are being installed with every new model of vehicle introduced in the market. Automobile industry has agreed to a new improved system that will deliver power to the heavy loads that they will require in modern vehicles. This idea was proposed after considering huge increase in the demand of new technology being installed in vehicles. Further, the true practical barriers to receiving of 42V have been designed and solved. Alternating Current is converted in to Dc with the help of switch mode power supply circuit. The circuit contains Metal oxide semiconductor field effect transistor for the switching at high frequency purpose and contains a pulse width modulation based feedback circuit that does not only drives the gate of MOSFET but also control the pulse width with any change in the input. The 42V system is designed and tested with the three batteries connected in the series.